WHAT IS CLAIMED IS:

1. A surface acoustic wave device, comprising an input interdigital transducer and an output interdigital transducer, disposed on a surface acoustic wave propagation path of a piezoelectric substrate, wherein

when an aperture length of an electrode finger of the input or output interdigital transducer is denoted by X, the output or input interdigital transducer has two divided interdigital transducers each having the electrode finger in which each aperture length is denoted by substantially X/2, and wherein

the two divided interdigital transducers are serial-connected, and the electrodes of the respective electrode fingers are led from the two divided interdigital transducers, and are disposed so that two output or input signals connected to a balance terminal pair have a different phase at 180°.

2. A surface acoustic wave device, comprising a plurality of interdigital transducers disposed on a surface acoustic wave propagation path of a piezoelectric substrate, and a reflecting electrode disposed at both the sides, wherein

the plurality of interdigital transducers contain a first type of interdigital transducer and a second type of interdigital transducer disposed alternately, wherein

when an aperture length of an electrode finger of the first type of interdigital transducer is denoted by X, each of the second type of interdigital transducers has two divided

interdigital transducers each having an electrode finger in which each aperture length is denoted by substantially X/2, and wherein

the first type of interdigital transducer is connected to an unbalanced input or output terminal pair, and the two divided interdigital transducers are serial-connected, and the electrodes of the respective electrode fingers are led from the two divided interdigital transducers, and are connected to a balanced terminal pair, and the respective electrode fingers of the two divided interdigital transducers are disposed so that phases of signals in the balanced terminal pair are different at 180°.

3. The surface acoustic wave device according to claim 1, wherein

in the two divided interdigital transducers, a position of the electrode finger at a side of connecting with the balanced terminal is mutually slid in half-waves.

4. The surface acoustic wave device according to claim 1, wherein

a connection part of the two divided interdigital transducers is connected to ground.

5. The surface acoustic wave device according to claim 2, wherein

a connection part of the two divided interdigital transducers is connected to ground.

6. The surface acoustic wave device according to claim 3, wherein

a connection part of the two divided interdigital transducers is connected to ground.

7. The surface acoustic wave device according to claim 2, wherein

the plurality of interdigital transducers constitute a double mode filter by three interdigital transducers.

8. The surface acoustic wave device according to claim 2, wherein

the plurality of interdigital transducers are five or more interdigital transducers, constituting a multi-electrode filter.

9. The surface acoustic wave device, wherein

the filters are formed by cascade-connecting two or more filters, and an outermost filter is configured by the surface acoustic wave device according to claim 1, and a balanced terminal pair is an input or output.

10. The surface acoustic wave device, wherein

the filters are formed by cascade-connecting two or more filters, and an outermost filter is configured by the surface acoustic wave device according to claim 2, and a balanced terminal

pair is an input or output.

11. The surface acoustic wave device according to claim 9, wherein

the two or more filters are cascade-connected to each other in a plurality of connection parts of the interdigital transducer configuring each filter, and a phase of the filter is reversed in each neighboring connection part of the plurality of connection parts.

12. The surface acoustic wave device according to claim 10, wherein

the two or more filters are cascade-connected to each other in a plurality of connection parts of the interdigital transducer configuring each filter, and a phase of the filter is reversed in each neighboring connection part of the plurality of connection parts.

13. A surface acoustic wave device according to claim 1, wherein

the piezoelectric substrate is a 40° to 44° rotated Y-X $LiTaO_3$.

14. A surface acoustic wave device according to claim 1 to 8, wherein

the piezoelectric substrate is a 66° to 74° rotated Y-X $LiNbO_3$.